

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended): A method for differentiating mesenchymal stem cells into steroid hormone-producing cells, comprising stimulating the mesenchymal stem cells by a transcriptional factor, [[([)]SF-1([)]], in the presence of cAMP, wherein the hormones produced are selected from the group consisting of progestin, androgen, estrogen, glucocorticoid, and mineralcorticoid.

2. (Cancelled)

3. (Currently amended): A The method of claim 1, wherein the mesenchymal stem cells are derived from bone marrow.

4. (Currently amended ): A The method of claim 3, wherein the mesenchymal cells are derived from human.

5. (Currently amended): A The method of claim 1 wherein the stimulating by SF-1 in the presence of cAMP is for producing steroid hormone-producing cells, comprising ~~implementeding the method of claim 1~~ in vitro.

6. (Currently amended): A method for producing steroid hormone-producing cells, comprising ~~implementing the method of claim 1 by transplanting the mesenchymal stem cells into a mammalian reproductive organ,~~ wherein the mesenchymal stem cells contact extracellular components of the reproductive organ to induce SF-1 in the stem cells and thereby differentiate into steroid hormone-producing cells.

7. (Cancelled)

8. (Currently amended): A ~~method for producing steroid hormone, comprising culturing the steroid hormone-producing cells obtained by t~~The method of claim 5 further

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comprising culturing the steroid hormone-producing cells and recovering steroid hormone from the culture medium.

9. (Cancelled)

10. (Previously presented): Non-human animals carrying the steroid-producing cells obtained by the method of claim 5.

11. (New) The method of claim 1 wherein the hormones produced are progestin or androgen.